

Released Assessment Questions, 2016

QUESTIONS

Grade 9 Assessment of Mathematics • Academic

Read the instructions below.

Along with this booklet, make sure you have the *Answer Booklet* and the *Formula Sheet*.
You may use any space in this book for rough work for multiple-choice questions only.
The diagrams in these booklets are not all drawn to scale.

ATTENTION:
Unlike in the actual assessment booklet, the questions in this booklet are sorted by strand.
There are more multiple-choice questions in this booklet than in a regular booklet.

Continue to read the directions on the cover of the Answer Booklet.

Education Quality and Accountability Office

EQAO

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Multiple-Choice

Remember to write your answers in your Answer Booklet.

A ball is dropped from a height of 25 m. The ball's height, H , in metres, after n bounces is represented by the equation below.

$$H = 25\left(\frac{1}{2}\right)^n$$

What is the height of the ball after 4 bounces?

a $\frac{75}{16}$ m
b $\frac{25}{8}$ m
c $\frac{25}{4}$ m
d $\frac{25}{16}$ m

A school is planning a car wash to raise \$600.

- There will be 8 teams.
- Each team will wash 2 cars per hour.
- The car wash will last $5\frac{1}{2}$ hours.
- Each team will take two 15-minute breaks.


How much should the school charge per car to raise exactly \$600?

a \$15.00
b \$7.50
c \$6.82
d \$6.25

Which of the following is equivalent to $3(5x - 1) - 2(3x + 5)$?

a $9x - 13$
b $9x + 4$
c $21x - 13$
d $21x + 4$

A cube with a given side length is pictured below.



Which algebraic expression represents the area of one face of the cube?

a $2x$
b $4x$
c x^2
d x^3

Multiple-Choice

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$n = 4$

$H = 25\left(\frac{1}{2}\right)^4$

$H = 25\left(\frac{1}{2}\right)^4$

$H = 25\left(\frac{1}{2}\right)^4 = \frac{25}{16}$

$600 = 16(5)P$

$600 = 80P$

$7.50 = P$

$3(5x - 1) - 2(3x + 5)$

$15x - 3 - 6x - 10$

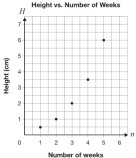
$9x - 13$

$(x)(x)$

Multiple-Choice

Information about the relationship between the height of a plant and time is shown on the grid below.

Height vs. Number of Weeks



Which table of values shows only information about this relationship?

a

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 1 | 2 |
| 2 | 3 |
| 6 | 5 |

b

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 2 | 1 |
| 3 | 2 |
| 5 | 6 |

c

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 1 | 1 |
| 2 | 2 |
| 4 | 7 |

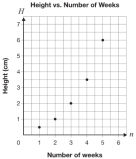
d

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 2 | 1 |
| 3 | 2 |
| 4 | 4 |

Multiple-Choice

Information about the relationship between the height of a plant and time is shown on the grid below.

Height vs. Number of Weeks



Which table of values shows only information about this relationship?

a

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 1 | 2 |
| 2 | 3 |
| 6 | 5 |

b

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 2 | 1 |
| 3 | 2 |
| 5 | 6 |

c

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 1 | 1 |
| 2 | 2 |
| 4 | 7 |

d

| Number of weeks | Height (cm) |
|-----------------|-------------|
| 2 | 1 |
| 3 | 2 |
| 4 | 4 |

$1, 0.5$

$2, 1$

$3, 2$

$4, 3.5$

$5, 6$


$(3, 5)$

$(5, 3.5)$

Multiple-Choice

Two golf courses offer student memberships. Information about the linear relationships between the total cost, C , in dollars, and the number of games played, n , at these two golf courses is given below.

First Golf Course



Second Golf Course

| Number of games, n | Total cost, C (\$) |
|----------------------|----------------------|
| 3 | 51 |
| 5 | 85 |
| 9 | 153 |
| 12 | 204 |

Which of the following statements correctly describes the two relationships?

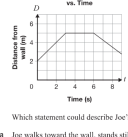
a They are both direct variations.

b The first is a direct variation, and the second is a partial variation with an initial value of \$17.

c The first is a partial variation with an initial value of \$10, and the second is a direct variation.

d The first is a partial variation with an initial value of \$10, and the second is a partial variation with an initial value of \$17.

Distance From Wall vs. Time



Which statement could describe Joe's walk?

a Joe walks toward the wall, stands still and then walks away from the wall.

b Joe walks away from the wall, stands still and then walks toward the wall.

c Joe walks toward the wall, stands still and then continues to walk toward the wall.

d Joe walks away from the wall, stands still and then continues to walk away from the wall.

$(3, 51)$

$(5, 85)$

$85 - 51 = 34$

$34 / 2 = 17$

$y = 17x + b$

$51 = 17(3) + b$

$51 = 51 + b$

$51 - 51 = b$

$0 = b$

$(3, 51)$

$(5, 85)$

$85 - 51 = 34$

$34 / 2 = 17$

$y = 17x + b$

$51 = 17(3) + b$

$51 = 51 + b$

$51 - 51 = b$

$0 = b$

Multiple-Choice

page 5

1. Consider the graph below.

Which of the following is an equation representing this graph?

☒ a. $P = 2n + 6$

☒ b. $P = \frac{1}{2}n + 6$

☒ c. $P = -2n + 6$

☐ d. $P = -\frac{1}{2}n + 6$

Handwritten notes: $(0, 6)$ $(3, 0)$
 $\frac{0-6}{3-0} = -\frac{6}{3} = -2$

Open-Response

page 5

Go to the Answer Booklet and complete the six open-response questions before continuing with question 15.

☐ Open-Response

☐ Open-Response

☐ Open-Response

☐ Open-Response

☐ Open-Response

☐ Open-Response

Multiple-Choice

page 6

2. Information about four different linear relationships between C and n is shown below.

| n | C |
|-----|-----|
| 0 | 50 |
| 8 | 90 |
| 16 | 130 |

| n | C |
|-----|-----|
| 10 | 30 |
| 12 | 35 |
| 14 | 40 |

Handwritten notes: $(0, 50)$ $(8, 90)$
 $\frac{90-50}{8-0} = \frac{40}{8} = 5$
 $(10, 30)$ $(12, 35)$
 $\frac{35-30}{12-10} = \frac{5}{2}$
 $m = 5$

How many of the linear relationships have a rate of change of 5?

☒ a. 4

☐ b. 3

☐ c. 2

☐ d. 1

Open-Response

page 6

Multiple-Choice

page 7

3. Which graph shows a line that is perpendicular to the line $y = \frac{3}{4}x - 4$?

☒ a.

☒ b.

☒ c.

☐ d.

Handwritten notes: $m = -\frac{3}{4}$
 $(0, 4)$ $(3, 0)$
 $m = \frac{4}{3}$
 $(-4, 0)$ $(0, -3)$
 $m = \frac{3}{4}$

Open-Response

page 7

Multiple-Choice

page 8

4. What is an equation of the line perpendicular to the line represented by $y = -\frac{2}{3}x + 1$ and with the same y -intercept as the line represented by $y = -\frac{3}{2}x + 7$?

☒ a. $y = \frac{3}{2}x + 7$

☐ b. $y = \frac{2}{3}x + 5$

☒ c. $y = -\frac{3}{2}x + 7$

☒ d. $y = -\frac{2}{3}x + 5$

Handwritten notes: $m = \frac{3}{2}$ $b = 7$

5. The total cost to repair a fridge, C , in dollars, can be represented by the equation $C = 60t + 30$, where t is the repair time in hours. Which of the following statements is true about this relationship?

☒ a. The hourly rate is \$90.

☒ b. The fixed fee is \$90.

☒ c. The hourly rate is \$60, and the fixed fee is \$30.

☐ d. The hourly rate is \$30, and the fixed fee is \$60.

Handwritten notes: $m = 60$ $b = 30$

6. What is the area of the shape represented below?

☐ a. 28 cm²

☐ b. 56 cm²

☐ c. 84 cm²

☐ d. 168 cm²

Open-Response

page 8

Multiple-Choice

page 9

7. This diagram shows a greenhouse that is built in the shape of a half-cylinder. Material to cover the roof costs \$3/m². The shaded ends will not be covered. Which is closest to the cost of covering the roof?

☐ a. \$7540

☐ b. \$12,570

☐ c. \$15,080

☐ d. \$37,700

Open-Response

page 9

8. A cone is pictured below.

Hint: Use Pythagorean theorem as part of your process.

Which of the following is closest to the surface area of the cone?

☐ a. 267 cm²

☐ b. 283 cm²

☐ c. 691 cm²

☐ d. 723 cm²

Multiple-Choice

page 10

9. Which of the following composite shapes has 900° as the sum of its interior angles?

☐ a.

☐ b.

☐ c.

☐ d.

Open-Response

page 10